MODBUS OPERATION

Model	Chameleon CTM-200 gateway
Revision	1.1

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Revision Control

Description	Revision	Date
Customer Release Updated Documentation for CTM-200	revision 1.0	07-19-2012
Updated Documentation for CTM-200	Revision 1.1	03-08-2013

1 CTM-200 MODBUS Operation

The CTM-200 gateway supports the MODBUS protocol commonly used in SCADA applications. The gateway can be configured as one of four types of MODBUS devices:

- MODBUS Self Slave (section 2)
- MODBUS Master Gateway (section 3)
- MODBUS Slave Gateway (section 4)
- MODBUS Master (section 5)

This application note details how to setup a CTM-200 gateway in MODBUS mode. The MODBUS connection uses the cellular wireless packet data network so is able to provide the advantages of high data rates, and being always connected so available for quicker response times. Over-the-air MODBUS messages can be configured to be sent as MODBUS RTU messages encapsulated in UDP packets, or as

MODBUS TCP messages. MODBUS RTU over UDP messages minimizes wireless data usage at the cost of less reliable data delivery. MODBUS TCP messages provide reliable data delivery at the cost of increased wireless data usage. The default configuration for the gateway in MODBUS mode is to use MODBUS TCP as the over-the-air protocol.

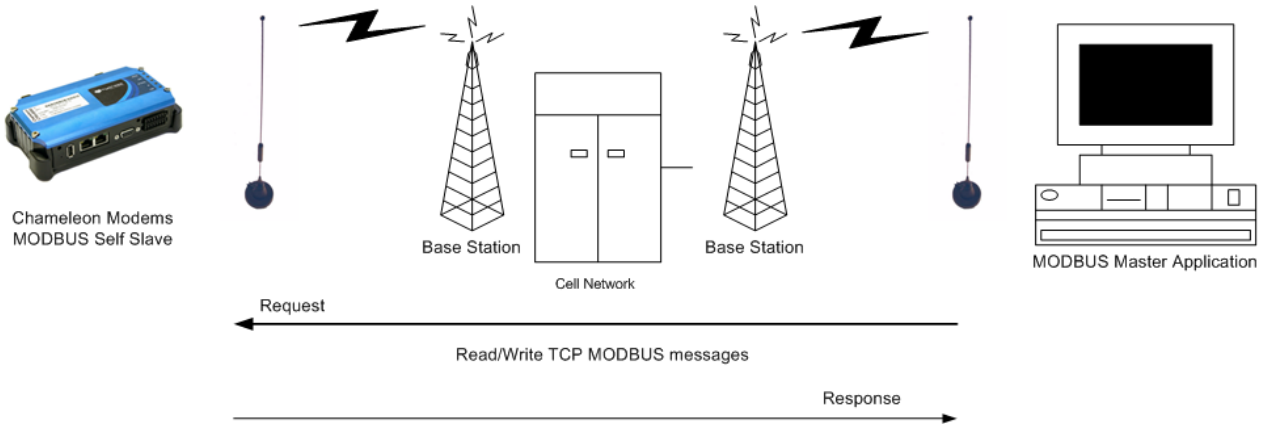
For added security, MODBUS Secure can be used to securely exchange MODBUS data. This is to support applications that require secure communication through SSH tunneling.

To enable MODBUS Secure, the following commands must be entered:
cmd modbussecure 1 #Default value 0
cmd save
cmd pwr mode 2

Note: SSH tunneling must be setup between the remote server and CTM modem. See **Securing the CTM-200 using SSH Tunneling** application note for more details.

The details and explanations of the commands used in these examples can be found at the following link: http://cloud.cypress.bc.ca/documents/Command_Ref/CTM200/

2 MODBUS Self Slave

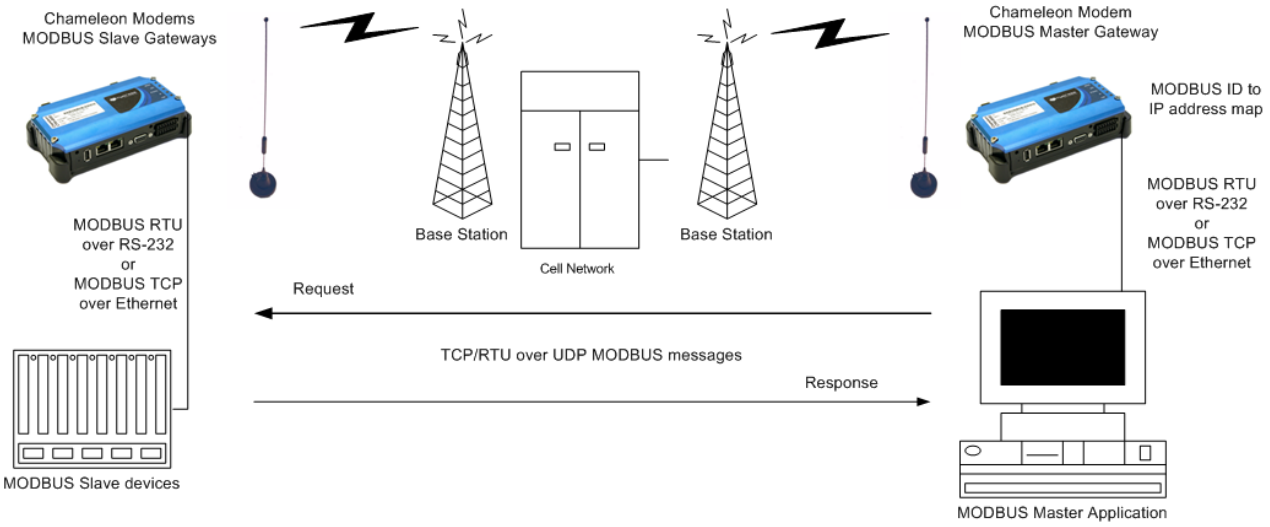


A MODBUS Master Application can “read” and “write” to a CTM modem configured as a MODBUS Self Slave. See http://www.cypress.bc.ca/modbus_messages_ctm200.html for example read/write messages to send from the MODBUS Master Application to the CTM modem.

Configuration for MODBUS Self Slave modem:

```
cmd mode 6                  #MODBUS host interface
cmd modbusadd 3             #Self slave using MODBUS ID 3
cmd save                    #Save configuration
cmd pwr mode 2              #Power cycle modem
```

3 MODBUS Master Gateway

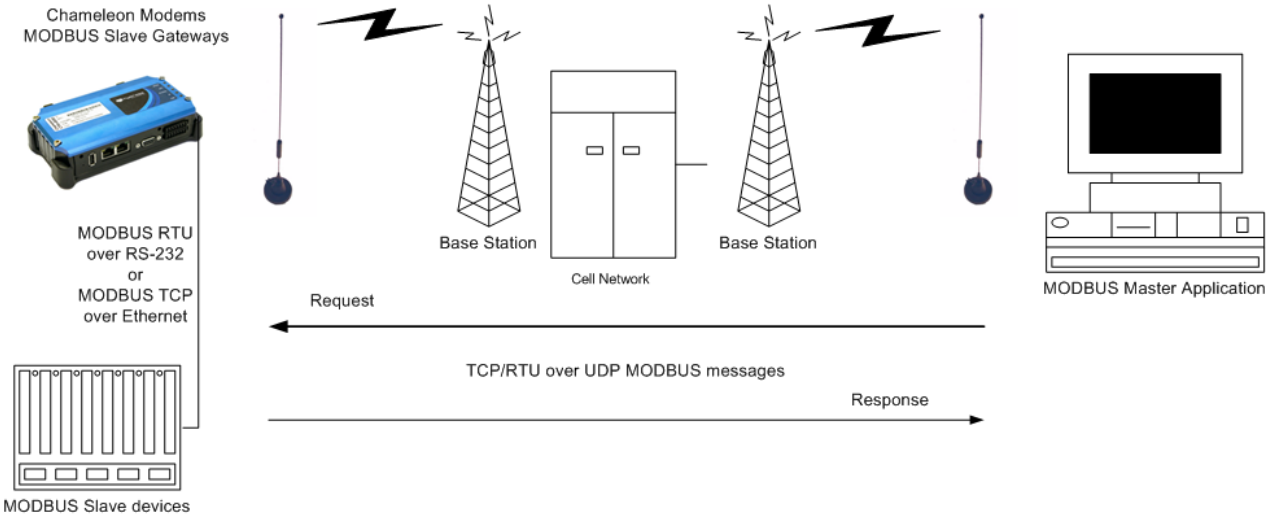


3.1 MODBUS Serial Master Gateway Configuration

The following set of gateway commands will configure the gateway to act as a MODBUS serial Master Gateway using MODBUS RTU between the MODBUS Master application and the gateway, and using MODBUS RTU over UDP for over-the-air communication.

```
cmd modbusmode 1                    #Set gateway to be a MODBUS serial RTU master gateway
cmd modbusctm130 1                  # Use RTU over UDP for over the air communication. 0=TCP
cmd port 1 9600 8 n 1 0             #Set serial port settings
cmd modbusidmap 1 123.2.1.2 502     #Add an entry to the MODBUS ID to slave gateway IP map.
cmd modbusidmap                     #List all entries in MODBUS ID to slave gateway IP map
cmd mode 6                          #MODBUS host interface
cmd save                            #Save configuration
cmd pwr mode 2                      #Power cycle modem
```

4 MODBUS Slave Gateway

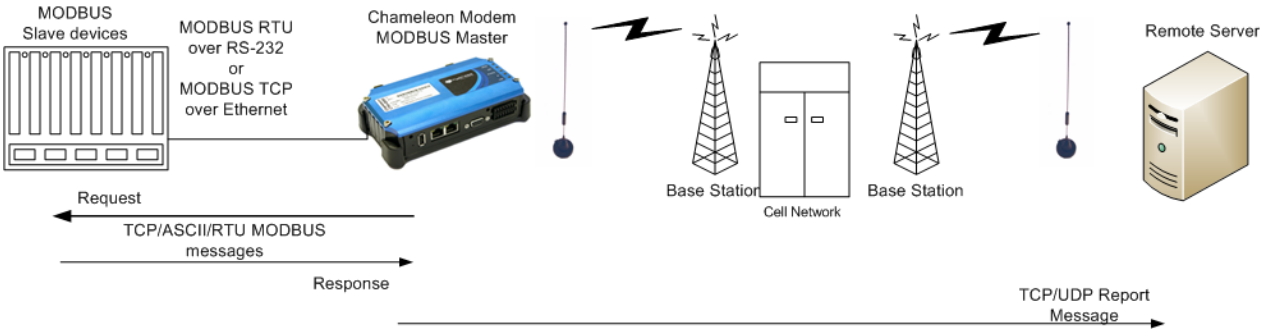


4.1 MODBUS Serial Slave Gateway Configuration

The following set of gateway commands will configure the gateway to act as a MODBUS slave gateway using MODBUS RTU between the gateway and the MODBUS serial slave device(s), and using MODBUS RTU over UDP for over-the-air communications.

cmd modbusmode 0	#Set gateway to be a MODBUS slave gateway
cmd modbusctm130 1	# Use RTU over UDP for over the air communication. 0=TCP
cmd port 1 9600 8 n 1 0	#Set serial port settings
cmd modbusadd 1 Serial R	#Set the serial port slave device to have a slave ID of 1 and to #use MODBUS RTU as the serial transmission mode.
cmd modbusadd	#List all entries in MODBUS slave list
cmd mode 6	#MODBUS host interface
cmd save	#Save configuration
cmd pwr mode 2	#Power cycle modem

5 MODBUS Master



Refer to **MODBUS Master** application note for more setup details

6 Technical Support/Warranty:

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